Remarks

Favorable reconsideration is respectfully requested.

The claims are 41-55 and 57-69 with claims 44, 48 to 52, 59, 60, 62 to 64 and 66 to 69 being withdrawn from reconsideration.

The cancellation of claim 56 is responsive to Official Action paragraph 5.

Further, the above amendment is responsive to the rejection under 35 U.S.C. §112 Official Action paragraph 7.

In this regard, as explained in the previous response filed March 26, 2003, the amended claims are supported by the description of the specification as discussed below.

When contaminated matter such as soil is treated by a method defined in amended claim 41 or 53, the oxidation reduction potential (ORP) of the treated contaminated matter is decreased to -380 mV or less by reaction with a mixed reducing agent, within a short period of time such as less than one-hour as illustrated in, for example, Example 7.

In the environment, an ORP will gradually be elevated because oxidizing substances such as oxygen, nitric, acid, etc. are diffused from a surrounding environment into a treated matter.

This is obvious to a person skilled in the art, and is reported in "Engineered Approaches for In Situ Bioremediation of Chlorinated Contamination, Buttelle 1999" (Reference 1) and "ISEB 2000" (Reference 2). These references have already been submitted to the U.S. PTO in the response of March 26, 2003.

From a technical standpoint, the inventors of the present application predicated that it would be important for dehalogenating halogenated organic compounds present in contaminated matter to maintain a decreased ORP of the treated contaminated matter for at least a certain period of time. To test their prediction, the inventors measured an ORP and a concentration of halogenated organic compounds of treated contaminated matter during an incubation period mixing.

The results are shown in Example 10 in the specification. The Example discloses that it is critical to maintain a decreased ORP of a mixed contaminated matter for a relatively long time in order to desirably achieve dehalogenation of halogenated organic compounds to be treated; and that

the maintenance time should be at least 20 days with an ORP of not more than -380 mV, as shown below and as recited in claims 41 and 53.

The amendment of claims 41 and 53 is supported by, for example, Example 10, Table 12.

In Table 12 in Example 10, the decomposition ratio of pentachlorophenol (PCP) and the ORP values were determined both 20 and 40 days after the start of the Test. The conversion ratio of PCP of Test Run No. 10-1 on the 40th day which had an ORP of -380 mV on the 20th day was 94.3%, while the conversion ratio of PCP of Test Run No. 10-2 on the 40th day which has an ORP of -170 mV on the 20th day was only 76.5%. This Example demonstrates that in tests that are conducted over a long period of time, such as 40 days, if an ORP is determined to be no more than -380 mV within a shorter period of time such as 20 days after the start of the test, it is possible to predict whether a decomposition level will reach a desirable level or not. That is, at 40 days after the start of the test, 94.3% of PCP was decomposed.

The Examiner states in paragraph 5, on page 5 of the present Official Action that it is not clear which of the Examples that include the use of both a reducing agent and nutritional liquid provide the desired degradation within a period of 5 days. In reply to the Official Action, claims 44 and 53 were amended, as explained above, so that an ORP of contaminated matter is reduced and maintained to be not more than -380 mV at least 20 days from the start of treatment. This does not mean that the 20th day after starting treatment is a terminal point for the treatment; rather it is an interim point for measuring and thereby predicting a desired decomposition of the contaminant PCP.

Thus, claims 41, and 53 are properly supported by the description of the specification, especially, by Example 10.

No further issues remaining, allowance of this application is respectfully requested.

If the Examiner has any comments or proposals for expediting prosecution, please contact undersigned at the telephone number below.

Respectfully submitted,

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